



# GeoPowering the West

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U.S. Department of Energy

Seattle Regional Office



# Mission

US Department of Energy Office of Energy  
Efficiency and Renewable Energy

**To ensure that Federal programs for efficient energy and clean power technologies are implemented at the Federal, regional, state and local levels, providing Americans with a stronger economy, healthier environment, and more secure future.**



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# EERE's Regions





# Opportunities for Partnerships

Rebuild America

Wind Powering America

Million Solar Roofs

Geopowering the West

Distributed Energy Resources

Clean Cities

Building Standards and Codes

Federal Energy Management Program







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# Why Geothermal?

- Energy Security
- Electric Restructuring
- Clean Air
- Climate Change
- Economic Competitiveness
- Energy Reliability



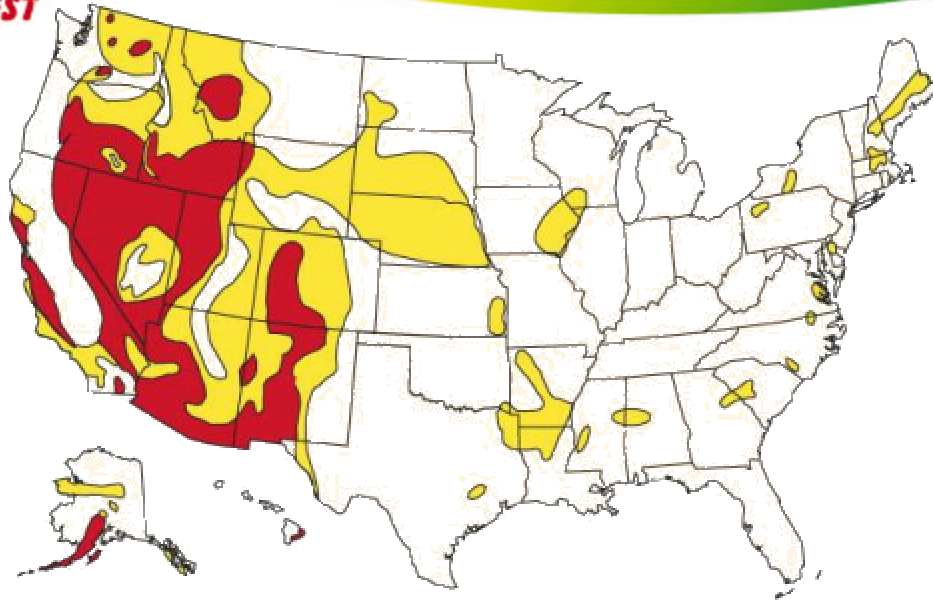


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# Geothermal Resource Map

## Geothermal Resources

- Good - Excellent
- Fair - Moderate



U.S. Installed Capacity (2,800 MW)

- California – 2500 MW
- Nevada – 200 MW
- Utah – 40 MW
- Hawaii – 30 MW

Additional States With Geothermal Development Potential:

- Alaska
- Idaho
- Arizona
- New Mexico
- Colorado
- Oregon
- Wyoming



# Goals

- Build on current and future public and private sector efforts to significantly expand the use of geothermal electricity and geothermal heat to a widespread portion of the West
  - Provide 10% of the electricity needs of the western states by 2020 with 20,000MW of geothermal energy installed
  - Supply the electrical power or heat energy needs of at least 5 million U.S. homes by 2010
  - Double the number of states with geothermal electric power facilities to eight by 2006



# Executive Order 13123

“Greening the Government Through Efficient  
Energy Management”

- Section 404 Electricity Use
  - Include green power provisions in RFP’s “whenever procuring electricity”
  - Can use energy efficiency savings to pay premium
- Renewables Goal: 2.5% by 2005
  - “***Renewable energy***” means energy produced by solar, wind, geothermal, and biomass power
  - Credit towards EE goals

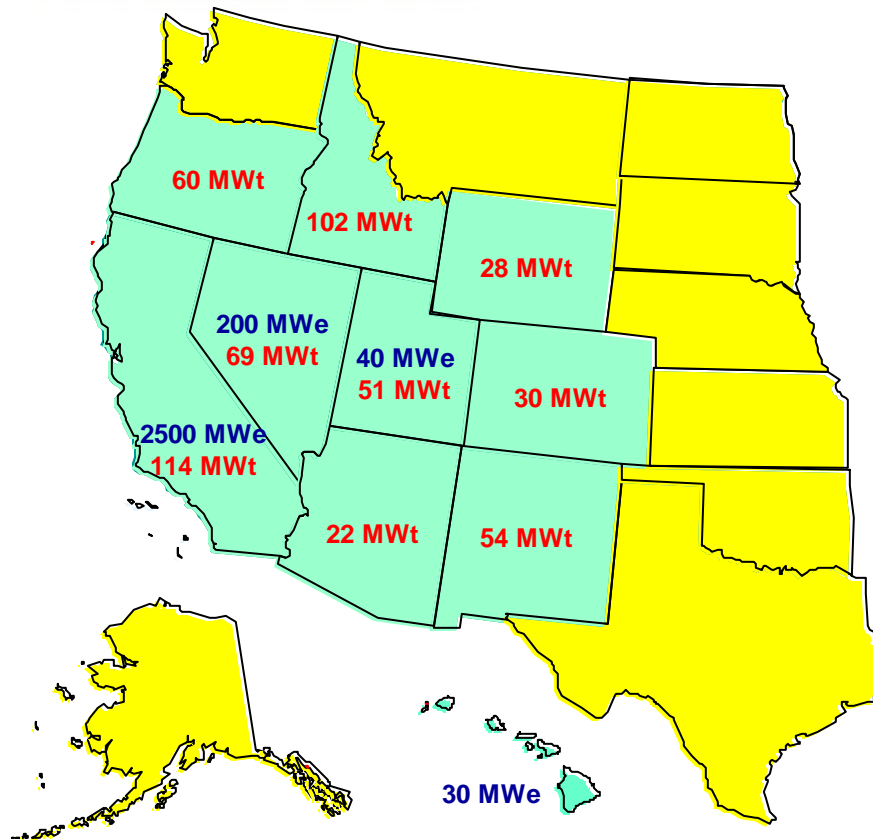


# Other Federal Renewable Goals

- Department of Energy Directive
  - 3% of DOE electricity from non-hydro renewable energy by 2005
  - 7.5% by 2010
- Wind Powering America
  - Encourage federal agencies to purchase 5% of electricity from wind by 2010
- Proposed Senate Bill includes Federal Purchase Requirement (S1766, Section 263)



# Heat and Power for the 21<sup>st</sup> Century



Installed:

Over 2800 MW (electric)

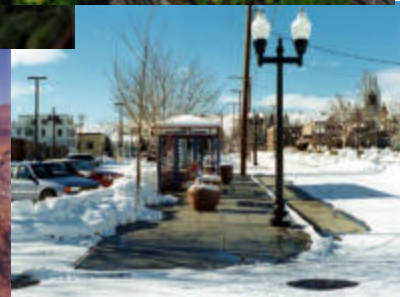
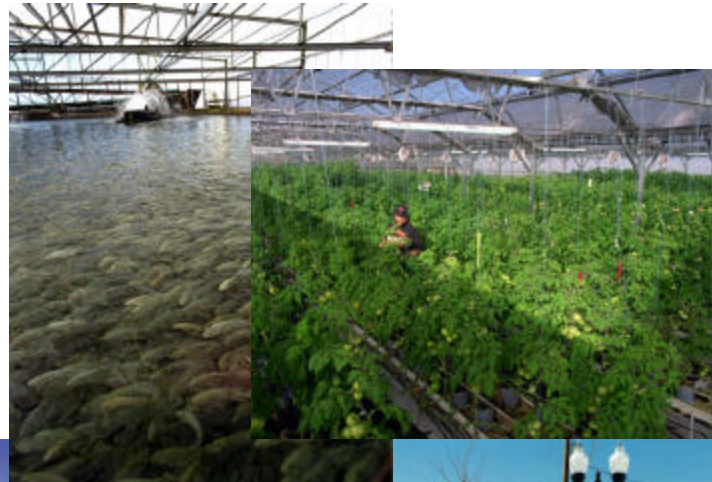
Over 500 MW (heat)

-  Greater Than 20 MW
-  Less than 20 MW



# Local and Regional Economic Development

- District Heating
- Distributed Power
- Process Heat
- Agriculture
- Aquaculture







# Geothermal Energy Getting Cheaper

**1980: 15-16 cents/kWh**

**2000:  
5-8 cents/kWh**

- Improved technology
- Economies of scale
- Reduced cost of finance



Steamboat Hills  
Geothermal Facility

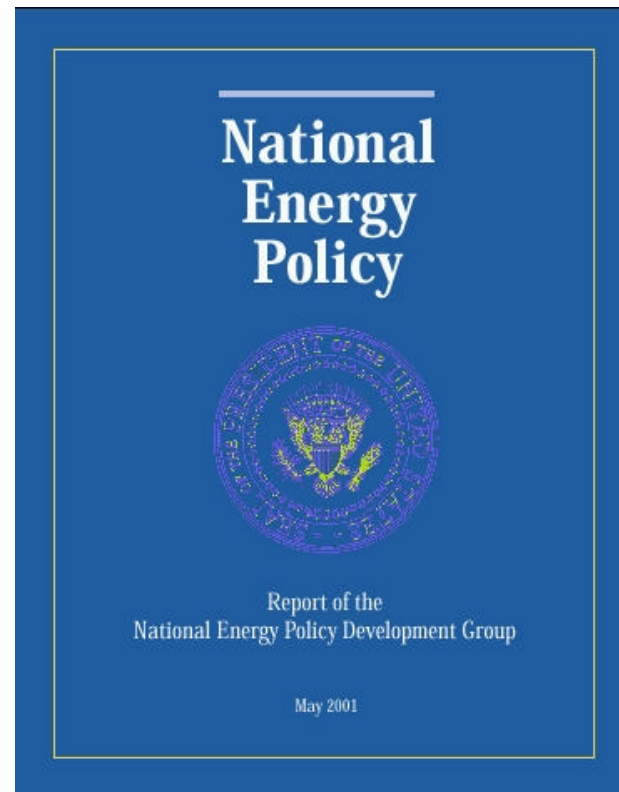
**2010: 3-5 cents/kWh**



# The President's National Energy Policy

*Contains over 100 recommendations*

- ▶ 42 modernize and increase conservation, protect the environment and help communities.
- ▶ 35 diversify the supply of clean, affordable renewable energy and modernize our antiquated infrastructure.
- ▶ 25 strengthen global alliances and national energy security.





# National Energy Policy (NEP) and GeoPowering the West

Through Public-Private Partnerships:

- Outreach & Education

**“ Develop an education campaign that communicates the benefits of alternative forms of energy...”**

- Access to Public Lands

**“ The NEPD Group recommends the President direct the Secretaries of the Interior and Energy to re-evaluate access limitations to federal lands in order to increase renewable energy production....”**



# NEP: Outreach and Education

- DOE Leadership
- Federal, State and Local Outreach
- Industry Partnerships





# State Workshops and Working Groups

- **Objectives**
  - Target States in most need
  - Host state-wide forum
  - Target key Federal agency managers
  - Secure state-wide coordination
  - Leverage resources
  - Identify key barriers/opportunities
  - Secure high visibility
  - Secure key support
  - Provide strong education





## Education/Information/Training

### Geopowering State Working Groups and Network

Albuquerque, April 3-4

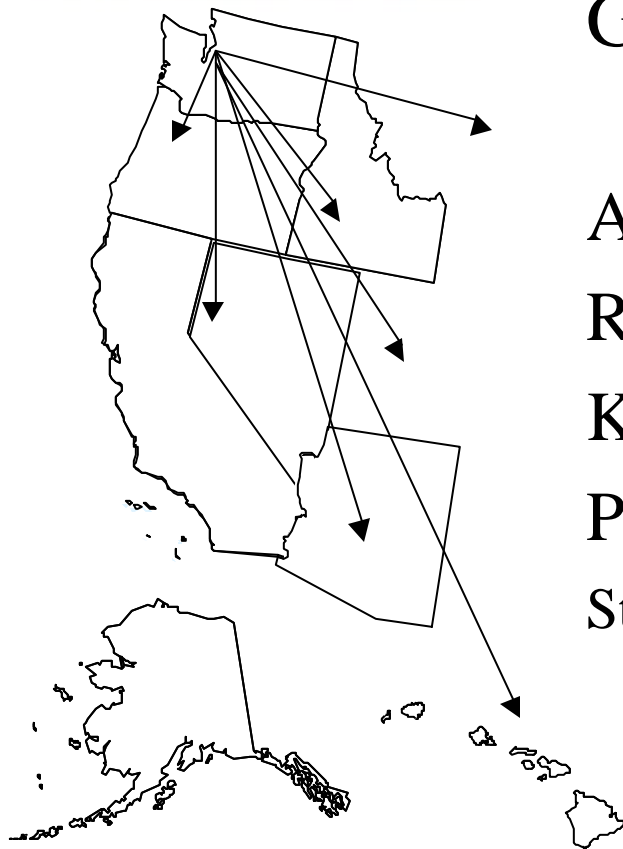
Reno, April 17th

Klamath Falls, April 19th

Portland, April 20<sup>th</sup>

State Geopowering Network

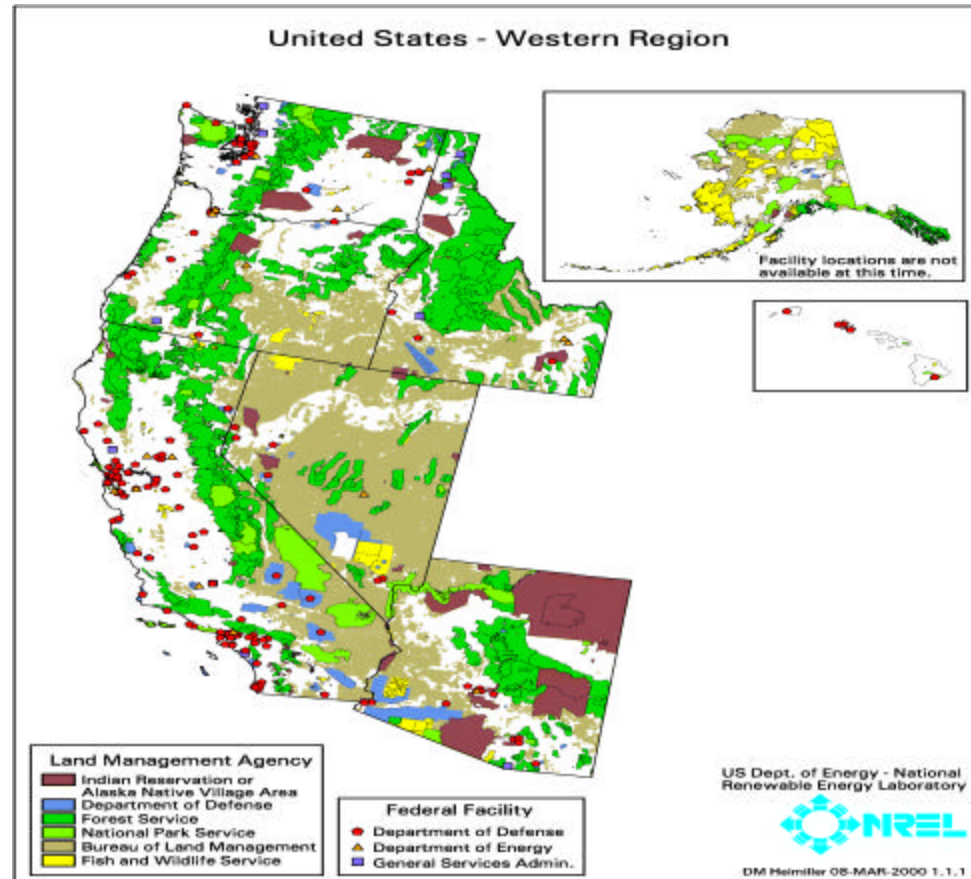
- WSU/ Gordon Bloomquist
- NREL, Sandia, INEEL
- GRC Reno, Sept 22-26<sup>th</sup>





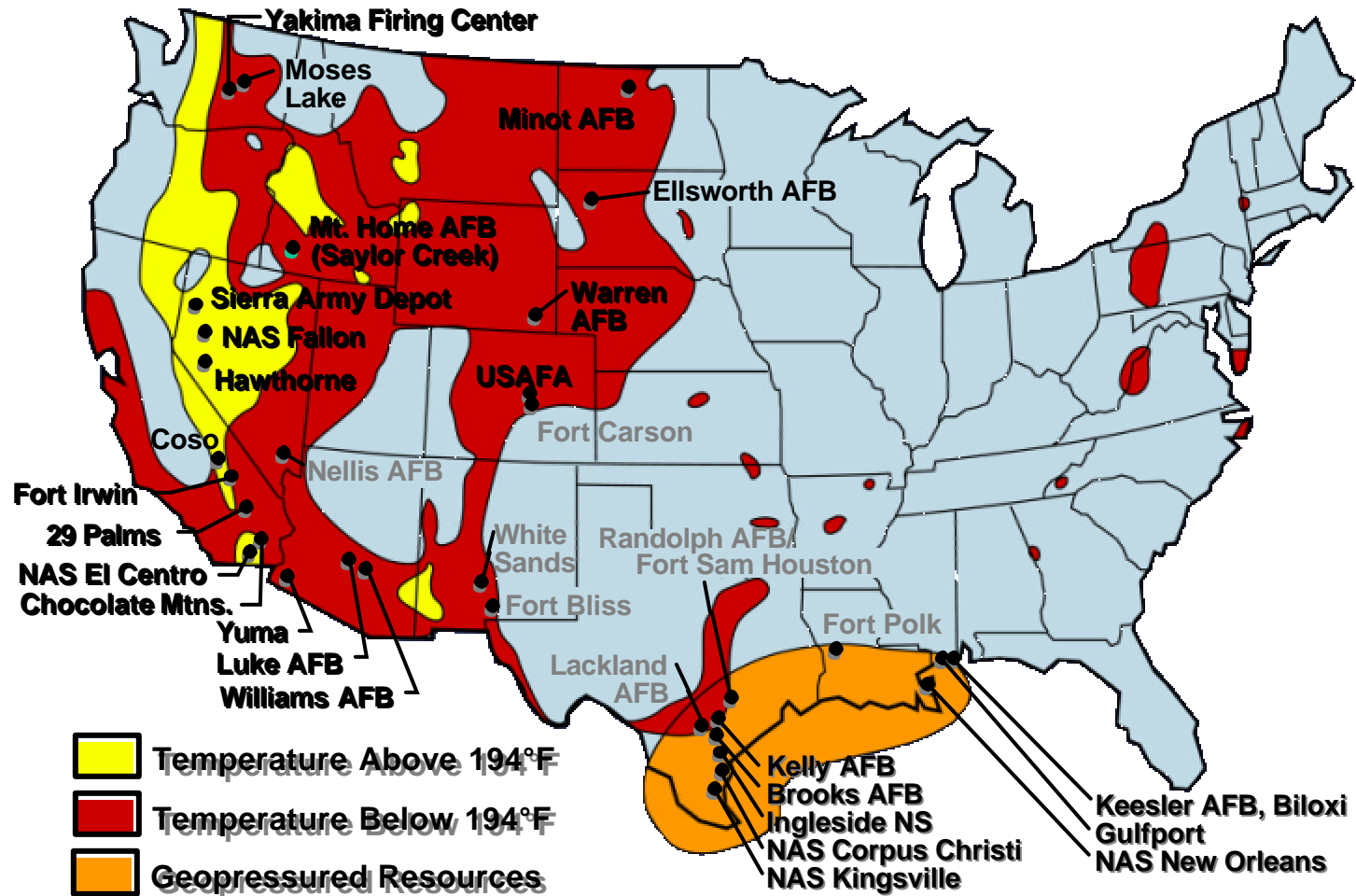
# Federal Land Ownership

Federal  
Agencies  
helping to  
drive the  
market





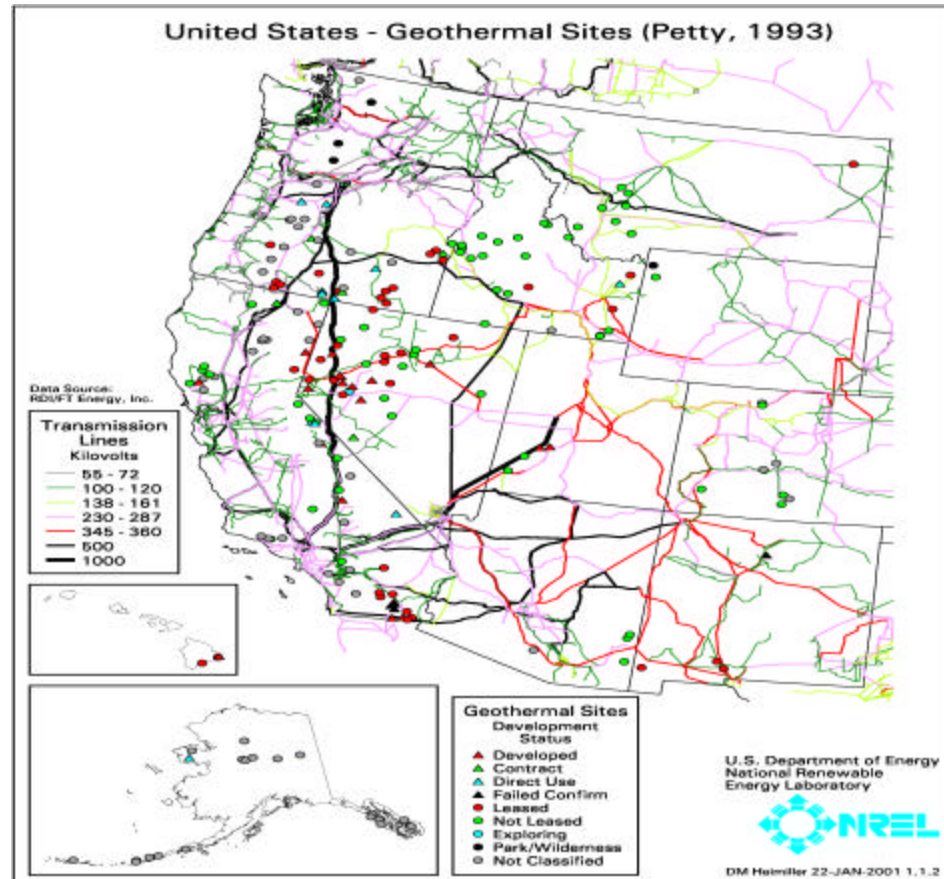
# Geothermal Resources





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# West Coast 500kV DC Intertie





# Challenges

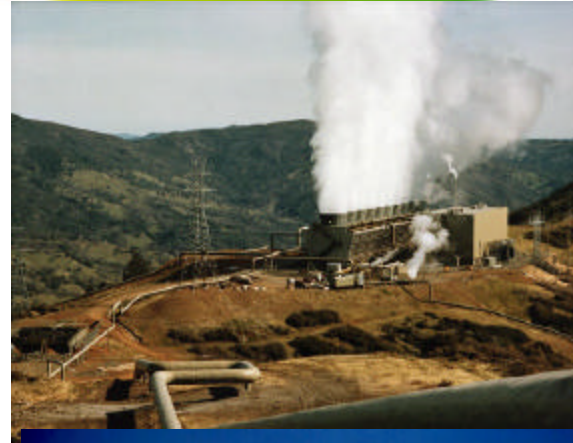
- Use of public lands
- Siting/ Permitting
- Cost of electricity
- New resources for development
- Market uncertainties
- Transmission access
- Public awareness





# A Vision for the Geothermal Energy Future

- Ready Access to Land
- Thoroughly Mapped and Developed Resources
- Cost Competitive Technology
- Available Transmission Corridors – Energy Export
- Solid Energy Related Rural Economic Development Base
- Energy Security – Diversified American Energy Portfolio





## Our Role...

**Assess** customer priorities and needs

**Identify** EERE resources

**Offer** products and services from DOE

**Leverage** Federal/ non-Federal  
resources

**Monitor** and report performance



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